

A REVISION OF *COMESPERMA* (POLYGALACEAE) IN QUEENSLAND

by L. Pedley

Queensland Herbarium, Brisbane

Summary

Fourteen species of *Comesperma* occur in Queensland, six of them endemic. All species are described and a key to distinguish them is provided. *C. breviflorum*, *C. hispidulum* and *C. pallidum* are described as new. *C. esulifolium* and *C. oblongatum* are new combinations based on *C. ericinum* DC. forma *esulifolium* Gandoger and *C. ericinum* var. *oblongatum* R. Br. ex Benth. respectively.

Comesperma is best developed in temperate Australia, particularly in the south-west. It is significantly represented in coastal and subcoastal parts of Queensland, however, where there are 14 species, six of them endemic, some with restricted geographic ranges. There has been no critical study of Queensland taxa and there has been a tendency to refer diverse plants to a few species, particularly to *C. ericinum* and *C. retusum*. These species if broadly interpreted, do occur in south-eastern Queensland but other related species are also found. Some of these have already been recognized as distinct by previous workers, though sometimes as taxa of lower rank. Differences between taxa found in Queensland are slight but constant and warrant the recognition of a number of closely related species rather than the recognition of a few species with many infra-specific taxa. This is contrary to the treatment of Thompson (1978) who took a much broader view of *C. ericinum* and *C. sylvestre*.

Van Steenis (1968) referred *Comesperma* to *Bredemeyera*, transferring 13 species from *Comesperma* to *Bredemeyera*. Ten of the necessary transfers had already been made (Ewart & Davies 1917; Anon. 1923), the combinations being attributed to Chodat. I have followed Burbidge & Gray (1970), Willis (1972) and Thompson (loc. cit.) in treating *Comesperma* as a distinct genus. Bentham (1863) noted the differences between the two, and van Steenis acknowledged the value of seed characters used by Bentham, the position of the coma and the development of a caruncle, in distinguishing them. Nevertheless van Steenis treated *Comesperma* as a section only of *Bredemeyera*. He referred *B. papuana* to the newly described section *Melchiora*, distinguished from section *Comesperma* on account of its axillary racemes and exterior calyx lobes persisting beneath the fruit. The latter character seems rather trivial and *B. papuana* is probably best referred to *Comesperma*. Phenetically it resembles *C. volubile* though ecologically it is different from all other species. To regard *B. papuana* as a primitive link between Australian *Comesperma* and *Bredemeyera* add unnecessary complexity to the taxonomy and phytogeography of Polygalaceae.

1. Capsule sessile, seeds filling cells without a coma 1. ***C. sphaerocarpum***
 Capsule narrowed at base; seeds with coma which occupies narrow basal part
 of capsule 2.
2. Leaves scale-like (usually up to 3.5 mm long) or absent, stems not twining
 2. ***C. defoliatum***
 Leaves not scale-like, at least 5 mm long, or if absent, then stems twining 3.
3. Leaves broadest near the base, up to 5 times as long as wide, cordate, truncate or
 rounded 4.
 Leaves 2–20 times as long as wide, often oblong, not markedly broad near the
 base 5.
4. Flowers creamy white. Leaves hispidulous, rounded, or cordate at base,
 1.4–2.8 times as long as wide 4. ***C. secundum***
 Flowers usually mauve or purple, rarely white. Leaves glabrous, truncate or
 slightly cordate at base (3–)4–5 times as long as wide 5. ***C. patentifolium***
5. Stems twining; leaves 2–6.5 cm long, sometimes absent 3. ***C. volubile***
 Stems erect, not twining; leaves rarely more than 2.5 cm long 6.

6. Branchlets hispidulous with hairs 0.3–0.5 mm long 7.
 Branchlets glabrous or puberulous, hairs to *ca* 0.1 mm long 8.
7. Leaves less than 3.5 mm wide, concave 6. *C. hispidulum*
 Leaves (3–)4–8 mm wide, flat 7. *C. sylvestre*
8. Leaves less than 15 mm long 9.
 Leaves more than 15 mm long 13.
9. Leaves less than 2 mm wide. Flowers small; inner sepals and corolla lobes 4 mm
 long 10.
 Leaves 1.5–4 mm wide. Flowers: inner sepals 5–7.5 mm long, corolla lobes
 4–6 mm long 11.
10. Branchlets glabrous; inflorescence 6–8 cm long in flower; pedicels 2–3 mm long
 8. *C. breviflorum*
 Branchlets puberulous; inflorescence less than 2 cm long; pedicels 4.5–5.5 mm
 long 9. *C. praecelsum*
11. Branchlets glabrous or sparsely puberulous; leaves 2–5(–7) times as long as
 wide 10. *C. retusum*
 Branchlets puberulous or rarely glabrous but then leaves 6–10(–15) times as
 long as wide 12.
12. Leaves 5–11 × 1.5–2.5 mm, less than 6.5 times as long as wide 11. *C. ericinum*
 Leaves 10–25(–40) × (1.5–)2–3.5(–4) mm, 6–10(–15) times as long as
 wide 12. *C. esulifolium*
13. Leaves less than 2 mm wide; corolla lobes less than 4 mm long 9. *C. praecelsum*
 Leaves rarely less than 2 mm wide; keel more than 4 mm long 14.
14. Branchlets puberulous 12. *C. esulifolium*
 Branchlets glabrous, rarely sparsely puberulous 15.
15. Flowers purple; capsule *ca* 10 mm long 13. *C. oblongatum*
 Flowers cream; capsule 10–15 mm long 14. *C. pallidum*

1. *Comesperma sphaerocarpum* Steetz, Pl. Preiss. 2:314 (1848). **Type:** In Nova Hollandia, *Bauer* (not seen).

Bredemeyera sphaerocarpa (Steetz) Stennis, Acta Bot. Neerl. 17:383 (1968). Based on *C. sphaerocarpum*.

Perennial, stout rootstock with erect or ascending glabrous or puberulent stems to 40 cm tall, scale leaves to *ca* 3.5 mm long at base of plant. Racemes terminal, up to 9 cm long; pedicels 2.5–3 mm long, sometimes decurved in fruit. Flowers violet or blue. Calyx: outer sepals oblong concave subequal 2.8–3.2 mm long, 1–1.5 mm wide; inner sepals, conspicuous sub-orbicular, 5(–7) mm long and about as wide. Corolla: wings acute, falcate, 4.2–4.6 mm long; keel *ca* 3.5 mm long. Capsule orbicular, not narrowed at base 3.5–4 mm long and wide. Seed lenticulate slightly longer than wide, 2.2 × 1.8 mm, pubescent, the basal hairs cohering into a short pale appendage.

Flowering period: Summer generally.

COOK DISTRICT: Ravenshoe, Dec 1976, *Lockyer* 69. NORTH KENNEDY DISTRICT: Herberton, *Michael* 1654, Jan 1912, *Kenny*. L. EICHHARDT DISTRICT: Blackdown Tableland, *ca* 32 km SE of Blackwater, Apr 1971, *Henderson* et al. 752 & 851. DARLING DOWNS DISTRICT: Wallangarra, Jan 1933, *Blake* 4528. MORETON DISTRICT: Glasshouse Mtns, Feb 1920, *Francis*; Caloundra, Dec 1933, *White* 9653; Chermside Hills, Brisbane, Sep 1961, *Pedley* 800; Nerang Creek, in 1889, *Schneider*.

Comesperma sphaerocarpum occurs in eucalypt open-forest in coastal parts of south-eastern Queensland with isolated occurrences near Herberton and on Blackdown Tableland. It differs from all other species found in Queensland in having capsules without elongated stipes.

2. *Comesperma defoliatum* F. Muell., Pl. Vict. 1:189 (1863). **Type:** Clouds Creek, *Beckler* (K, iso).
Bredemeyera defoliata (F. Muell.) Chodat ex Cens. Pl. Vict. ed. 1:40 (1923).

Perennial, stout rootstock with ascending glabrous stems to 60 cm tall rarely to 1 m, leafless or with scale leaves up to 3.5 × 0.5 mm. Racemes terminal up to 10 cm long, pedicels 1–2 mm long. Flowers blue, calyx: outer sepals oblong concave, 3–3.5(–4) mm × 1.2–1.5 mm, one slightly wider than the others; inner sepals, conspicuous, suborbicular, 5–5.5 × 3–4 mm. Corolla: wings acute, falcate (4–) 4.5–5 mm long, pubescent outside at the base, and sometimes woolly inside at confluence with keel and at tip; keel 3.5 × 4 mm long, saccate on each side near top; pistil glabrous. Capsule rounded at end, 8.5–9 mm × ca 3 mm. Seeds lenticular ca 1.5 × 1 mm, long hairs filling lower narrow part of capsule.

Flowering period: summer, generally.

WIDE BAY DISTRICT: Fraser I., Oct 1921, *Epps*; Fraser I., edge of L. Birrabeen, Aug 1941, *Blake* 14348; between Howard and Traverston, Oct 1929, *White* 6368. MORETON DISTRICT: Coolum (Beach), Nov 1964, *Smith & Knowles* 12230, Jan 1977, *Sharpe* 2153; Beerwah State Forest, ca 44 miles [70 km] N of Brisbane, March 1953, *Melville* (K); Bribie I., Sep 1913 & Apr 1915, *White*, Nov 1919, *Francis*; Moreton I., Dec 1890, ex herb. *Simmonds*, Mar 1973, *Durrington* 180; near Southport, Apr 1968, *Lebler & Baxter*; Binna Burra (Lamington National Park), Jan 1962, *R. Jones* J287. DARLING DOWNS DISTRICT: Mt Norman, Dec 1970, *Hockings*.

Comesperma defoliatum is common on seasonally waterlogged peaty sands in coastal wallum areas south of Fraser Island, but has also been collected from moist sandy areas on the McPherson Range and near Stanthorpe. It bears a superficial resemblance to *C. sphaerocarpum*, but its capsule is different. The two species also have different ecological ranges.

3. *Comesperma volubile* Labill., Pl. Nov. Holl. 2:24, t. 163 (1806). **Type:** not seen.
Bredemeyera volubilis (Labill.) Chodat ex Cens. Pl. Vict. ed. 1:40 (1923).

Twining shrub; branchlets ribbed, glabrous except occasionally for scattered small hyaline hairs on ribs. Leaves sparse scattered, apparently absent from some plants, variable in size, and shape often on same plant, glabrous, linear, narrowly ovate or narrowly obovate, often gradually tapering to base or apex, 2–6.5 cm long, 2–5 mm wide, 5–15(–20) times as long as wide, margins slightly reflexed, somewhat discolourous; petioles short. Racemes terminal on short branches towards ends of stems, 2–5 cm long, pedicels 3–5 mm long. Flowers blue, purplish blue, or pinkish purple. Calyx: outer sepals ovate obtuse with a broad base, ± equal in length 2.5–3 mm long, ca 1.5 times as long as wide; inner sepals clawed, obtuse, 5.5–7.5 mm × 4–5 mm. Corolla pubescent on inside about the middle: wings narrow oblong 4–5.2 × ca 1 mm, about as long as the keel, adnate to the keel for half its length. Pistil glabrous. Fruit not seen mature, 12 × 2.2 mm, not retuse at apex.

Flowering period: August–September.

MORETON DISTRICT: Maroochie, Oct 1894, *Bailey*; Lamington National Park, Oct 1934, *White* 11443; Springbrook, Sep 1929, *Rudder*, Sep 1930, *Hubbard* 4238, Sep 1959, *Hockings*; Burleigh Heads, Dec 1921, *Young*; Tugun, Sep 1930 *Hubbard* 3873, (K, BRI), & *White* 7104.

Comesperma volubile occurs in eucalypt open-forests only in the extreme south-eastern part of the state on infertile sandy soils on the lowlands and on richer soils in the McPherson Range. It is not a common plant and has probably become extinct in the lowlands of the mainland.

4. *Comesperma secundum* Banks ex DC., Prod. Syst. Nov. 1:334 (1824). **Type:** Endeavour River, *Banks* (not seen).
Bredemeyera secunda (Banks ex DC.) Chodat ex Ewart & Davies, Fl. North. Terr. 160 (1917).

Slender sparingly branched shrub to 1 m tall; branchlets terete, hispidulous, hairs 0.2–0.3 mm long. Leaves hispidulous particularly on margin and midrib, rather thick in texture with only midrib prominent, ovate or oblong 6–9 mm × 3.5–5 mm, 1.4–2.8 times as long as wide, mucronulate, rounded or cordate at the base; petiole less than 0.5 mm long. Inflorescences up to 15 cm long, glabrous, pedicels 1–3 mm long. Flowers creamy white. Calyx: outer sepals ± equal in length, 0.8–1 mm long, inner sepals extremely concave rounded, 2.5–3 mm × 1.5–1.7 mm. Corolla: keel and wings about equal in length, 2.8–3 mm long. Pistil glabrous. Capsules ca 12 mm × 2–3 mm. Seeds narrowly ovoid, ca 3 mm long, 0.8 mm in diameter, hairs deciduous about 9 mm long.

Flowering period: May to July, or later in the year in some localities.

COOK DISTRICT: 30 miles [48 km] SW of Portland Roads, Jul 1968, *Pedley* 2749; 44 miles [70 km] N of Coen, Aug 1965, *Gittins* 1002; N of Laura River, May 1975, *Byrnes* 3354; NW of Cooktown, near Isabella Falls, May 1970, *Blake* 23416 (BRI, K); Endeavour River, July 1819, *Cunningham* 229 (K).

Comesperma secundum occurs on shallow sandy soil in heathy understorey of eucalypt communities in Cape York Peninsula. It extends to the northern part of the Northern Territory. Some specimens suggest that the inflorescences are secund as the specific epithet suggests, but this is not always so, nor has it been noted by collectors.

5. *Comesperma patentifolium* F. Muell., Fragm. Phytog. Aust. 1:48 (1858). Type: Mountains, Burnett Ranges, *Mueller* (K, iso).

C. ericinum DC. var. *patentifolium* (F. Muell.) Benth., Fl. Aust. 1:147 (1863).

Shrub to ca 1 m tall; branchlets hispidulous. Leaves glabrous, slightly discolorous, 8–10(–13) mm long, 1.8–2.5(–3) mm wide, (3–)4–5 times as long as wide, narrowly ovate, truncate or slightly cordate at the base, mucronate, the margins inflexed (or strongly inrolled when dry); petiole short. Racemes rather loose, up to 3 cm long; flowers “plum purple” or “deep mauve”; white in some populations or on some plants. Calyx: outer sepals deltoid obtuse 1.5 mm long, inner sepals rounded 5–5.5 mm long. Petals: wings and keel about as long as each other 4.5–5.5 mm long; keel with distinct beak; stamens and ovary as for *C. hispidulum*. Capsules glabrous, slightly emarginate, 10–11 mm long, 4–4.5 mm wide, abruptly narrowed in lower half. Seeds terete, ca 3 mm long, 2 mm wide with covering of short hairs and longer deciduous hairs filling lower part of capsule, a line or narrow wing from chalazal end to top of seed.

Flowering period: August–September.

LEICHHARDT DISTRICT: Blackdown Tableland, Sep 1937, *Simmons* 51, Sep 1969, *Johnson* 949 (BRI, K), Sep 1965, *Gittins* 1112, Apr 1971, *Henderson et al.* H571 (BRI, K), Sep 1971, *Henderson et al.* H1087 (BRI, K); Expedition Range, E of Rolleston, Sep 1961, *Story & Yapp* 269 (BRI, K). BURNETT DISTRICT: Hungry Hills, between Mt Perry & Eidsvold, Jul 1956, *Coaldrake*. DARLING DOWNS DISTRICT: State Forest Reserve, N of Chinchilla, in 1958, *Cameron* QFD 659/1958.

Comesperma patentifolium occurs on shallow soil overlying sandstone from a little north of Chinchilla to Blackdown Tableland. Bentham whose circumscription of *C. ericinum* was broad referred it to that species, but its closest ally is *C. hispidulum* which has somewhat longer and wider leaves not cordate at the base. Both are distinguished from other Queensland species by the indumentum of the stem.

6. *Comesperma hispidulum* Pedley, species nova affinis *C. patentifolii* F. Muell. foliis longioribus latioribusque et non cordatis differt. Typus: Moreton District: Plunkett [ca 40 km S of Brisbane], Aug 1930, *Hubbard* 3785 (BRI, holo typus; K, isotypus).

Frutex usque 2.5 m altus, basi parce ramosus; ramuli hispiduli pilis usque 0.5 mm longis obsiti. Folia glabra (10–)15–20(–23) mm × 2–3.5 mm, 4–8 plo quam lata longiora, anguste oblonga vel aliquando oblanceolata discoloria concava mucronulata mucrone recto vel leviter deorsum curvato; costa in pagina inferiore prominens vulgo non in superiore; petiolus ca 0.5 mm longus. Inflorescentia: racemus corymbosus terminalis laxis usque 4 cm longus; bracteae et bracteoli mox caducae ca 1 mm longae; pedicelli 4–6 mm longi. Fores purpurascens; sepala exterioria deltoidea ± obtusa 1.2–1.8 mm longa; sepala interioria concava apice rotunda, 4.5–5.5 mm longa; corolla ex alis 4–5 mm longis et carina 3.5–4.5 mm longa constans; stamina ⅓ longitudine conjuncta parte libera 1 mm longa, staminalis tubus in parte inferiore ad petala adnatis; ovarium glabrum. Fructus 9–10 mm longus, 3–4 mm latus, emarginatus in dimidio inferiore abrupte contractus. Semina teretia 2.3–3 mm × 1–1.3 mm pilis dedicuis usque 6 mm capsuli partem inferiorem complementibus praedita, linea vel ala ex extreme chalazo ad apicem signata.

Shrub up to 2.5 m tall, sparingly branched at the base; branchlets hispidulous with hairs up to 0.5 mm long. Leaves glabrous (10–)15–20(–23) mm × 2–3.5 mm, 4–8 times longer than wide, narrowly oblong or occasionally oblanceolate, discolorous, concave, mucronulate with straight or slightly down-curved mucro, midribs prominent on underside but usually not on upper surface; petiole ca 0.5 mm long. Inflorescence a loose terminal corymbose raceme up to 4 cm long; bracts and bracteoles deciduous ca 1 mm long; pedicels 4–6 mm long. Flowers purplish; outer sepals deltoid ± obtuse 1.2–1.8 mm long; inner sepals rounded at the top, concave, 4.5–5.5 mm long; corolla wings 4–5 mm long, keel 3.5–4.5 mm long; stamens united for ⅓ of their length, free part ca 1 mm long, staminal tube adnate to the petals in the lower part. Capsule 9–10 mm long, 3–4 mm wide, emarginate, abruptly contracted in lower half. Seeds terete 2.3–3 × 1–1.3 mm with covering of deciduous hairs up to 6 mm long filling lower part of capsule, a line or wing from chalazal end to the top of the seed.

Flowering period: Mainly September with some flowering continuing till December.

Queensland. WIDE BAY DISTRICT: Tin Can Bay, Sep 1943, *White* 12296. MORETON DISTRICT: Mooloolah, Dec 1890, ex herb. *Simmonds*; Glasshouse Mts, Sep 1909, *White*; Caloundra, Aug 1932, *Blake* 4202; Moreton I., Sep 1908, *White* Q.F.N.C.: Aspley, Sep 1929, *White* 6208; Mt Byron ca 20 miles [32 km] ENE of Esk, Nov 1963, *Everist* 7605; Daisy Hill State Forest, 27°38'S 153°10'E, Nov 1976, *Elsol* 70 (BRI, CANB, NSW, K, MO); between Upper Albert and Plunkett, Aug 1930, *White* 7078. **New South Wales.** NORTH COAST DIVISION: Angourie, Aug 1966, *Lebler*.

Comesperma hispidulum is found in eucalypt woodland and open-forest on sandy soil from the mainland opposite the southern part of Fraser Island to northern New South Wales. Mt Byron is about as far inland as it has been collected. The specimen *White* 7078 (cited above) was probably collected at the same time as the holotype, though the labels indicate they were collected on successive days. *White* accompanied Hubbard on field trips in south-eastern Queensland, and many specimens seen both at BRI and K, particularly of *Acacia* and *Helichrysum*, bear almost identical data.

C. hispidulum and *C. patentifolium* are closely related. They may be no more than subspecifically distinct, but as they can be distinguished with certainty there is no reason not to regard them as distinct species, at least for the present.

7. *Comesperma sylvestre* Lindl. in Mitchell, Trop. Aust. 342 (1848). **Type:** near Mt Pluto, Oct 1846, *Mitchell* (K, iso).

Bredemeyera sylvestris (Lindl.) Chodat ex Ewart & Davies, Fl. North. Terr. 160 (1917).

Shrub to 2 m tall; branchlets angular with indumentum of moderately dense spreading hairs 0.3–0.5 mm long. Leaves glabrous and somewhat glaucous, flat, narrowly oblong or occasionally narrowly obovate 10–22 × (3–)4–8 mm, 2–5(–7) times as long as wide, mucronulate; petiole up to 1 mm long. Inflorescence glaucous, usually ca 3 cm long and dense, but elongating to ca 10 cm; pedicels ca 4 mm long; bracts and bracteoles deducous. Flowers purple or reddish purple. Calyx: outer sepals ± equal in length, 1.5–2 mm long; inner sepals concave, rounded, 5–5.5 mm × ca 3.5 mm. Corolla: keel slightly longer than the wings 5.5–6 mm long, wings 4.5–5.5 mm long; pistil glabrous. Fruit not seen.

Flowering period: August–October.

LEICHHARDT DISTRICT: 21 miles [34 km] SE of "Bedourie" Station, Oct 1963, *Speck* 1845 (K, BRI); Isla Gorge, 25°09'S 149°57'E, Sep 1968, *Everist* 8058 (BRI, K). Aug 1973, *Sharpe & Hockings* 607; Carnarvon Range, Oct 1933, *White* 9480, Sep 1938, *Young*, Sep 1940, *White* 11 325. MARANO DISTRICT: Mt Moffatt, Mar 1944, *Gear*.

The species is restricted to sandstone areas of south-central Queensland, an area with an unusually high number of endemic species.

8. *Comesperma breviflorum* Pedley, species nova affinis *C. ericini* DC. foliis brevioribus et floribus parvioribus differt. **Typus:** Mt Greville, Oct 1934, *Michael* 2072 (BRI, holotypus).

Plantae perennes graciles sparsim ramosae ca 0.5 m altae; ramuli glabri. Folia glabra linearia acuta, 7–15 mm × 0.8–1.2 mm, 9–15plo longiora quam lata, probabiliter plana ubi viva, reflexa recurvave ubi sicca, costa non prominenti. Inflorescentiae elongatae 6–8 cm longae, ubi fructiferae probabiliter 15 cm longae attigentes; bractae ca 2 mm longae, bracteoli ca 1 mm longi; pedicelli 2–3 mm longi. Calyx: sepala externa, supera 1.6 mm longa, laterales 1.3–1.4 mm longae; sepala interiores 3–3.5 mm × ca 2.5 mm. Corolla: alae 2.5–2.8 mm longae, carina 3–3.5 mm longa. Stamina diadelpha anteris ± sessilibus in utroque filamentum conjuncti. Pistillum glabrum. Capsula ignota, fabricia probabiliter illa specierum ceterarum ad sectionem *Comesperma* pertinentium similis.

Slender sparsely branched perennial ca 0.5 m tall; branchlets glabrous. Leaves glabrous linear acute, probably flat when fresh, reflexed or recurved when dry, midnerve not prominent, 7–15 mm × 0.8–1.2 mm, 9–15 times as long as wide. Raceme terminal elongate 6–8 cm long probably becoming 15 cm long in fruit; bracts ca 2 mm long, bracteoles ca 1 mm long; pedicels 2–3 mm long. Calyx: outer sepals, upper one 1.6 mm long, laterals 1.3–1.4 mm long; inner sepals 3–3.5 × ca 2.5 mm. Corolla: wings 2.5–2.8 mm long, keel 3–3.5 mm long. Stamens diadelphous, the anthers ± sessile on each of the united filaments. Pistil glabrous. Pod unknown, in structure probably similar to other species belonging to section *Comesperma*.

MORETON DISTRICT: Mt Ernest, Jan 1953, *Tyack Bake* (BRI, K).

This is evidently a rare species.

9. *Comesperma praeclsum* F. Muell., *Fragm. Phyt. Aust.* 11:2 (1878). **Type:** Rockingham Bay, *Dallachy* (K, iso).
Bredemeyera praeclsa (F. Muell.) Steen., *Acta Bot. Neerl.* 17:383 (1968).

Shrub *ca* 1.5 m tall (to 3.5 m *vide* Mueller); branchlets puberulous, the hairs rather thick, 0.1 mm long, extending to the bases of the leaves. Leaves narrow oblong obtuse mucronulate, the margins slightly recurved, 10–25 mm × 1–2 mm, 6–15 times as long as wide. Inflorescence short, overtopped by the leaves in the only specimen seen; pedicels glabrous 4.5–5.5 mm long. Calyx: outer sepals, upper *ca* 1 mm long, lateral ones 0.7–0.9 mm; inner sepals concave incurved, 3.3–4.4 mm × 2.2–3 mm. Corolla: wings 2.8–3.5 mm long, keel 3–4 mm; pistil glabrous. Capsule not seen, described by Mueller as oblong-cuneate, minutely bilobed at the emarginate top, 8–10 mm long.

NORTH KENNEDY DISTRICT: Hinchinbrook I., 18°29'S 146°19'E, Aug 1975, *Sharpe & Williams* 1662.

10. *Comesperma retusum* Labill., *Pl. Nov. Holl.* 2:22. t. 160 (1806). **Type:** not seen.
Bredemeyera retusa (Labill.) Chodat ex *Census Pl. Vict.* ed. 1:40 (1923).

Shrub; branchlets glabrous or occasionally sparsely puberulent. Leaves glabrous subsessile elliptic or oblong, flat, midrib prominent beneath, obtuse-mucronulate or acuminate, the tip somewhat hyaline, 7–12(–15) mm long, 1.5–3(–4) mm wide, 2–5(–7) times as long as wide, ± concolorous. Inflorescence glabrous, rather short; pedicels 3–5.5 mm long; bracts *ca* 1.5 mm long, bracteoles *ca* 1 mm long. Flowers purple. Calyx: outer sepals ± equal *ca* 2 mm long or two shorter *ca* 1.5 mm long; inner sepals rounded 5–6.5 mm × 3–4 mm. Corolla: wings 5 mm long, keel longer or shorter than wings 4.5–6 mm long. Pistil glabrous. Fruit retuse umbronnate *ca* 10 mm long, 2.7 mm wide.

Flowering period: October–December.

Queensland. WIDE BAY DISTRICT: Fraser I., Dec 1919, *Epps*. MORETON DISTRICT: Bribie Island, Nov 1919, *Francis*; Russell I., Sep 1917, *Parker*. DARLING DOWNS DISTRICT: Dalveen, Nov 1946, *Everist & Webb* 1291; near Wallangarra, Oct 1963, *Pedley* 1588. New South Wales. Point Lookout, New England National Park, Dec 1970, *Bell* 332.

In Queensland *Comesperma retusum* is a common species on sandy soils derived from granite in the vicinity of Stanthorpe. It also occurs on sandy soils on islands in south-eastern Queensland but is evidently not common there as no specimens have been added to the Queensland Herbarium since 1919. The species extends to Tasmania and perhaps consists of a number of infraspecific taxa.

11. *Comesperma ericinum* DC., *Prod. Syst. Nat.* 1:334 (1824). **Type:** not seen.
Bredemeyera ericina (DC.) Chadot, *Natur. Pflanzenf.* 3(4):331. fig. 177 (1896).

Slender subshrub to 1 m; branchlets minutely puberulous. Leaves, glabrous, margins strongly revolute when dry but probably only slightly incurved when fresh, ± discolorous, 5–11 × 1.5–2.5 mm, 3.7–6.5 times as long as wide. Inflorescence glabrous, rather open, 2–3 cm long; pedicels 4–5 mm long; bracts *ca* 1.5 mm, bracteoles *ca* 1 mm long, soon deciduous. Flowers purplish. Calyx: outer sepals upper one 1.5 mm long, laterals 0.8–1.2 mm inner sepals 5–6.4 mm × 3–4 mm long, concave, rounded. Corolla: wings usually slightly longer than the keel, 4–5.3 mm long, keel 4–4.8 mm long; pistil glabrous. Capsule truncate, umbonate, abruptly contracted in lower half, *ca* 10 mm × 3 mm; mature seeds not seen.

Flowering period: September–October.

Queensland. MORETON DISTRICT: Burleigh Heads, Dec 1921, *Young*; Tugun, Sep 1930, *Hubbard* 3866 (BRI, K). New South Wales: Byron Bay, Aug 1936, *White* 10245; Coffs Harbour, Oct 1930, *White* 7413.

In Queensland *Comesperma ericinum* is confined to the extreme south-eastern part of the State where it has been reported from coastal heath. Urban development has greatly reduced these habitats and it has not been collected in recent years.

12. *Comesperma esulifolium* (Gandoger) Pedley, *stat. et comb. nov.* Based on *Comesperma ericinum* DC. forma *esulifolium* Gandoger, *Bull. Soc. Bot. France* 60:456 (1913); McGillivray, *Contrib. N.S.W. Nat. Herb.* 4:319–365 (1973). **Type:** New South Wales: summit of Mt Warning, Nov 1898, *Forsyth* (NSW 120784, iso).

Shrub *ca* 1 m tall; branchlets minutely puberulous, rarely glabrous. Leaves glabrous, discoloured (particularly when dry) margins slightly recurved, (often strongly so when dry), 10–25(–40) mm × (1.4–)2–3.5(–4) mm, 6–10(1–15) times as long as wide: petioles to 1 mm long. Inflorescence glabrous, rather loose, usually 2–3 cm long. Pedicels 4–7 mm long, bract *ca* 2 mm long, bracteoles 1–1.5 mm long. Flowers pink, purple or rarely white. Calyx: outer sepal (1.7–)2–2.5 mm long, lower ones (1–)1.4–1.6(–2) mm long; inner sepals concave, rounded, 6–7(–7.3) mm × 3–3.5(–4) mm. Corolla: wings 5.5–6.5 mm long, keel as long as or slightly shorter than the wings, 5–6 mm long; pistil glabrous. Capsules truncate, umbonate, 7–8(–9) mm × 3–3.5 mm abruptly narrowed in lower half; seeds terete, 2–2.4 mm × 1–1.4 mm with hairs *ca* 5 mm long filling lower half of capsule.

Flowering period: mainly September–October.

Queensland. MORETON DISTRICT: Mt Maroon, Sep 1948, *Blake* 18246 (BRI, K), Jan 1962, *Everist* 7202, Aug 1964, *Gillieatt* 180 (BRI, K); Mt Ernest, Oct 1932, *White* 8580 & 8580A; Mt Lindesay, Oct 1921, *White*, Oct 1932, *Stewart*, Jul 1935, *Michael* 2221, Sep 1973, *Dowling* 124; Lamington National Park, McPherson Range, Oct 1934, *White* 11441, Oct 1961, *Jones* J234, Apr 1971, *Bell* 415; Springbrook, Jan 1916, *White*, Sep 1929, *White* 6216, Sep 1930, *Hubbard* 4203 (BRI, K) Oct 1931, *White* 8227, Jan 1938, *Goy & Smith* 230, Jul 1971, *K. R. McDonald*. **New South Wales.** NORTH COAST DISTRICT: Night Cap Range, Whiam Whiam State Forest, Sep 1963, *Jones*, Jul 1956, *Webb & Tracey*, Sep 1972, *Coveny* 4457 & *Rodd* (BRI, K); Mt Warning, Jan 1938, *White & Brass*, Oct 1939, *Rodway* 2978 (K).

Comesperma esulifolium is common on peaks of the McPherson Range usually at altitudes of more than 500 m. It is found on the edges of cliffs and in eucalypt communities but has been recorded in rainforest near the summit of Mt Lindesay. It has been referred to *C. ericinum* but has more elongate leaves.

13. *Comesperma oblongatum* (R. Br. ex Benth.) Pedley, comb. et stat. nov. Based on *C. ericinum* DC. var. *oblongatum* R. Br. ex Benth., Fl. Aust. 1:147 (1863). **Type:** Pine Port [Shoalwater Bay area], *Brown* (K, holo).

Subshrub; branchlets glabrous. Leaves oblong obtuse mucronulate, discoloured, margins recurved (at least when dry), 15–30 mm × 2.5–3.5 mm, 5.5–10 times as long as wide. Inflorescences congested, *ca* 2 cm long, elongating to 5 cm when in fruit. Flowers dark pink. Calyx: other sepals, upper 1.2–1.5 mm long, laterals 1–1.2 mm long; inner sepals 4–4.5 mm × 2.7–3.5 mm. Corolla: keel and wings 4.2–4.5 mm long, pistil glabrous. Capsule 9 mm × 3.5 mm; seeds 2.7 mm × 1 mm.

PORT CURTIS DISTRICT: Shoalwater Bay Military Reserve, 22°48'S 150°35'E, Jul 1977, *Clarkson & Stanley* 691; Byfield, Sep 1931, *White* 8039; Yeppoon-Byfield Road, Aug 1966, *Gittins* 1205.

Comesperma oblongatum is restricted to a small area near Rockhampton. It is reported to occur in exposed situations on headlands where it is considerably modified by wind. Herbarium specimens of these plants will probably result in the above description having to be modified to some extent.

14. *Comesperma pallidum* Pedley, J. Adelaide Bot. Gard. 3:127 (1981). Type: Mitchell District: Torrens Creek, Mar 1933, *White* 8703 (BRI, holo; BRI, K, iso).

Shrub to about 2 m tall; branchlets angular glaucous, glabrous or rarely sparsely puberulous. Leaves sessile oblong obtuse mucronulate, 15–25 mm × 2.5–5 mm, 4–6.5 times as long as wide, rather thick in texture with only the midrib prominent. Inflorescence rather dense, *ca* 6 cm long, pedicels *ca* 4 mm long; bracts and bracteoles deciduous. Flowers cream, purplish on keel. Calyx: outer sepals ± equal in length, 1.4–1.6 mm long, inner sepals concave obtuse 4.2–4.7 mm long. Corolla: keel longer than the wings 4.3–4.8 mm long, wings 3.8–4.4 mm long. Pistil glabrous. Capsules 10–15 × 3.5–4 mm, retuse umbonate, gradually narrowed to the base. Seeds 2.7–3 mm long, subcylindrical, 1.2–1.5 mm diam., the coma filling the base of the capsule.

Flowering period: Summer generally.

Northern Territory: *ca* 28 miles [45 km] N of Highland Rocks (approx. 21°S, 130°E), Aug 1970, *Maconochie* 1083 (BRI, NT). **Queensland.** BURKE DISTRICT: "Mt Sturgeon" Station, Feb 1931, *Hubbard & Winders* 7748, (K, BRI). NORTH KENNEDY DISTRICT: Warrigal, Feb 1931, *Hubbard & Winders* 7134 (K, BRI). MITCHELL DISTRICT: 10 miles [16 km] ENE of Torrens Creek, Jun 1953, *Perry* 3588 (K, BRI); "Aberfoyle" Station (*ca* 300 km SSE of Torrens Creek), Aug 1964, *Earnes*. SOUTH KENNEDY DISTRICT: "Taemas" Stn., 21°14'S 146°24'E, Sep 1977, *Williams* 77199; Sandy forest tableland of the Sutor, *Mueller* (K).

In Queensland *Comesperma pallidum* occurs on sandy or gravelly soils in eucalypt communities on both sides of the Diving Range north of the tropic and has been collected also in the Northern Territory. It has usually been included with *C. sylvestre*, probably because Bentham (*op. cit.*) referred the *Mueller* specimen cited above to that species.

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